

REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on June 24, 2003, and the references cited therewith. Claims 7 and 20 are amended, no claims are canceled, and no claims are added. Claims 1-27 remain pending in this application.

§112 Rejection of the Claims

Claims 1-27 were rejected under 35 USC § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant addresses this rejection below.

Claims 1-27 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant respectfully traverses these rejections and requests the Office to consider the following.

The Office has provided no reference that defines what a refractory metal is and is not. With this amendment, the Applicant is submitting a publication from The Metallurgical Society (TMS), "Refractory Metals: A Primer" (March 2002). This publication states that

refractory metals can be generally defined as those metals and their alloys that have melting points and chemical resistance properties that surpass those of stainless steel, cobalt- or nickel-based alloys. (Pete Lipetzky, Refractory Metals: A Primer, p 47.)

Applicant notes that the common stainless steels,

SS	MP, °C
302	1420
304	1421, and
316	1440

have respective melting points at or above 1420° C. Lipetzky next provides variously used definitions of what a refractory metal is, which definitions demonstrate no fixed taxonomy of "the" refractory metals. Lipetzky next states

[a]pparently, how one defines a refractory metal depends on the context in which one thinks. For general interest purposes, this article will focus on a rather broad definition, including selected elements from Groups IV through VII of the periodic table.

(Ibid.) But the "broad definition" itself, omits nickel and cobalt (Group VIII metals); these are commonly accepted "refractory metals". Consequently, Applicant respectfully asserts that the context of "refractory metals" taken from the disclosure, relates to all the previously presented "refractory metals", with the exception of Lanthanum and Cerium, which Applicant withdraws. Applicant has amended the specification to this effect. Applicant notes that at least the following disclosed metals have melting points above any of the given stainless steels:

Metal	MP, °C
Ni	1455
Co	1494
Ti	1672
Zr	1865
Hf	2231
Pd	1554
Pt	1772
Cr	1863
Mo	2623
W	3387
Sc	1541, and
Yt	1528.

Finally, Applicant notes the Office Action refers to refractory metals by "generally citing Group 4A, 5A, and 6A metals of the Periodic table as the refractory metals." (Office Action at page 2). But this definition is narrower than that provided in Lipetzky, who lists and discusses Rhenium, Re, a Group VII metal, and who includes Manganese, Mn, a metal with a melting point significantly below that of any of the presented stainless steels. Because Applicant can be his own lexicographer, and because academia does not provide a single, rigid definition of refractory metals, Applicant respectfully requests withdrawal of the rejections.

§103 Rejection of the Claims

Claims 1-27 were rejected under 35 USC § 103(a) as being obvious over Grumbine et al. (U.S. 6,136,711). Applicant respectfully traverses the rejection and requests the Office to consider the following.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the

knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (M.P.E.P. § 2143 8th Ed).

The Office Action mistakenly states that "Grumbine et al. (6,136,711) disclose a composition capable of etching tungsten as well as methods for using the composition for etching tungsten-containing substrates." (Office Action at page 4). Grumbine is primarily concerned with polishing tungsten, and with minimal etching. Grumbine makes this clear where he states "[t]he present invention is directed to a chemical mechanical polishing composition that is capable of polishing tungsten at high rates with minimal etching an/or corrosion." (Grumbine at column 2, lines 65-67). Thus, Grumbine is avoiding etching as borne out in the various examples that are directed to that end.

Applicant further notes the instant claims are directed to a process: "etching a BLM stack" (claim 1), a system that includes "a BLM stack" (claim 15), and a BLM etch system per se (claim 23). Grumbine is exclusively dealing with a CMP slurry that requires polishing tungsten. Grumbine makes no mention of etching, without polishing, of any structures that do not include tungsten, let alone etching a BLM stack. Because the scope of Grumbine is significantly different that the instant claims, withdrawal of the rejections is respectfully requested.

Regarding the first criterion, the Office Action states that "volume ratios of the components of the [CMP] solution would be selected by one of ordinary skill in the art to achieve a desired etch rate selectivity between the metal layers." (Office Action at page 4). Applicant respectfully disagrees. There is no suggestion in Grumbine to modify the reference to achieve the instant claims. Grumbine is not concerned with any etch selectivity between metal layers. The statement of the Office Action is therefore arrived at by using Applicant's disclosure as a guide. Withdrawal of the rejections is respectfully requested.

Regarding the second criterion, there is no expectation of success to achieve etching a BLM stack or the other limitations of the independent claims, because Grumbine is not

concerned with BLM stacks. Therefore, the expectation of success comes from using Applicant's disclosure as a guide. Withdrawal of the rejections is respectfully requested.

Regarding the third criterion, Grumbine is silent with respect to the limitations of etching a BLM stack and the other limitations of the independent claims. Because the reference does not teach or suggest all the claim limitations, withdrawal of the rejections is respectfully requested.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney, John Greaves at (801) 278-9171, or the below signed attorney to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743

Respectfully submitted,

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Date Aug. 25, 2003

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 25 day of August, 2003.

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